This listing of claims replaces the claims as previously filed:

IN THE CLAIMS

1-21. (Cancelled)

22. (Previously presented) A method for detecting a target intermediate tandem repeat DNA sequence having a low incidence of stutter artifacts, comprising the steps of:

(a) providing a sample of DNA having at least one target intermediate tandem repeat sequence, wherein the target intermediate tandem repeat sequence is a region of the DNA containing at least one repeat unit consisting of a sequence of five (5), six (6), or seven (7) base pairs repeated in tandem at least two (2) times; and

(b) amplifying the target intermediate tandem repeat sequence using at least one oligonucleotide primer, comprising a sequence which is complementary to and flanks a region of a double-stranded DNA marker containing a template intermediate tandem repeat sequence, wherein the template intermediate tandem repeat sequence is a region of the DNA marker which contains the repeat unit sequence repeated in tandem at least two (2) times, provided that the DNA marker has a sequence of SEQ ID NO:32; and

(c) detecting the target intermediate tandem repeat sequence in the sample of DNA, wherein an average stutter artifact of no more than 2.4% is observed.

23. (Original) The method of claim 22 wherein the oligonucleotide primer used in amplifying the target intermediate tandem repeat sequence has a fluorescent label covalently attached thereto.

24. (Original) The method of claim 22, wherein the stutter artifact is observed in step (b) by comparing the target intermediate tandem repeat sequence detected to fragments of known length in a DNA size marker.

25. (Original) The method of claim 24, wherein an average stutter of no more than 1.1% is observed.

26. (Previously presented) A method for detecting at least one target intermediate tandem repeat sequence in a DNA sample, wherein the target intermediate tandem repeat sequence is a region of the DNA sample which contains at least one repeat unit consisting of a sequence of five (5), six (6), or seven (7) base pairs repeated in tandem at least two (2) times; the method comprising the steps of:

(a) providing at least one oligonucleotide primer comprising a nucleic acid sequence which is complementary to and flanks a region of a DNA marker containing a template intermediate tandem repeat sequence, wherein the DNA marker has a sequence of SEQ ID NO:32;

(b) providing a DNA sample comprising the target intermediate tandem repeat sequence;

(c) using the at least one oligonucleotide primer to amplify the target intermediate repeat sequence of the DNA sample; and

(d) detecting polymorphisms in the amplified target intermediate tandem repeat sequence.

27. (Original) The method of claim 26, wherein the sample of DNA provided in step (b) is a sample of human genomic DNA.

28. (Original) The method of claim 26, wherein the target intermediate tandem repeat sequence is a perfect intermediate tandem repeat.

29. (Original) The method of claim 26, wherein the target intermediate tandem repeat sequence is an imperfect intermediate tandem repeat.

30. (Previously presented) The method of claim 26, wherein the oligonucleotide primer provided in step (a) comprises a sequence of SEQ ID NO:124 and SEQ ID NO:125, when the DNA marker sequence is SEQ ID NO:32.

31. (Previously presented) A kit for the detection of at least one target intermediate tandem repeat sequence in a sample of DNA, wherein the target intermediate tandem repeat sequence is a region of the sample of DNA which contains at least one repeat

unit consisting of a sequence of five (5), six (6), or seven (7) base pairs repeated in tandem at least two (2) times comprising:

a container which has at least one oligonucleotide primer for amplifying the at least one target intermediate tandem repeat sequence, wherein the oligonucleotide primer comprises a sequence of nucleic acids which is complementary to and flanks a region of a double-stranded DNA marker containing a template intermediate tandem repeat sequence comprising the repeat unit repeated in tandem at least two (2) times; and wherein the DNA marker has a sequence of SEQ ID NO:32.

a container which has at least one oligonucleotide primer for amplifying the at least one target intermediate tandem repeat sequence, wherein the oligonucleotide primer comprises a sequence of nucleic acids which is complementary to and flanks a region of a double-stranded DNA marker containing a template intermediate tandem repeat sequence comprising the repeat unit repeated in tandem at least two (2) times; and wherein the DNA marker has a sequence of SEQ ID NO:32.

32. (Original) The kit of claim 31, further comprising a DNA marker.

33-34. (Cancelled)